

REMARKS

Reconsideration of blade for creping a paper web Claims 15 to 29 respectfully is requested. A Petition for Extension of Time (two months) with the appropriate fee is being filed herewith. For reasons indicated in detail hereafter these claims are urged to define patentable subject matter that is neither disclosed nor suggested in the prior art.

Applicants' Specification includes an extensive discussion of difficulties which are encountered when seeking to provide blades for the creping of a paper web which are capable of performing satisfactorily over an extended period of time. The relevant state of the art should be given full consideration when evaluating the patentability of Applicant's contribution which is shown to provide (1) improved wear properties at the web impact area which results in a lower wear rate and increased operating life combined with smoother wear characteristics and the formation of a creped paper product which displays a more consistent quality, and (2) reduced edge chipping at the working edge that contacts the moving paper web. When deleterious edge chipping is reduced, the useful life of the blade is enhanced and the quality of the resulting creped product is not adversely impacted.

In an effort to expedite prosecution, Claims 1 to 14 are canceled without prejudice. Applicants reserve the right to continue to pursue the subject matter of these claims in a timely filed Continuation Application.

The continued rejection of Claims 15 to 29 as being directed to obvious subject matter under 35 U.S.C. §103(a) over the different printing teachings of U.S. Patent No. 5,727,468 to Blackwell combined with the different doctor teachings of U.S. Patent No. 3,688,336 to Costello Jr. would be lacking sound technical and legal bases.

It respectfully is submitted that a hindsight reconstruction of different prior art teachings while using Applicants' teachings as a guide cannot reasonably be used to reject claims under 35 U.S.C. §103(a).

A *prima facie* case for the obviousness of the presently claimed subject matter respectfully is urged to be absent in the reasonably derived teachings of the references. To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested in the prior art. They are not. See in this regard M.P.E.P. §2143.3 citing In re Royka, 490 F. 2nd 981, 180 USPQ 580 (CCPA 1974). "All words in the claim must be considered when judging the patentability of the claim against the prior art". In re Wilson, 424 F. 2nd 1342, 165 USPQ 494 (CCPA 1970).

Blackwell discloses a doctor blade exclusively for use in a rotary printing press. As shown in Fig. 2 the blade is designed to cooperate with an ink duct roller in a trailing position. It is apparent that since the blade is used in a trailing position in the rotary printing press there is no wear on the end tip (14) of the blade. There is no ceramic coating on the end tip (14). As acknowledged in the Official Action, Blackwell contemplates in this different context the use of aluminum oxide which may contain "a small percentage of titanium dioxide (TiO₂)". In the context of paper creping blades an important difference between alumina-based ceramic materials and chromia-based ceramic materials is discussed in connection with Figs. 12 to 14 of the present Application. Figs. 12 and 13 show the working edge of an alumina-based creping blade after 28 and 131 hours of running time, and Fig. 14 shows a working edge of chromia-titania creping blade after 116 hours of running time. It is evident from these images that the worn surface structure of the alumina-based blade is considerably more coarse than that the chromia-titania blade. As indicated

in Applicants' Specification at Page 17, second paragraph, the improvement in wear properties with the chromia-titania material can be at least in part attributed to the fact that the chromia-titania material is a single phase material. On the contrary, the alumina-based blade is a multiphase material leading to the uneven wear evidenced in Figs. 12 and 13. In a multiphase material, it has been found that the various phases will typically exhibit different wear properties. This produces the coarse and rough wear surfaces of Figs. 12 and 13. See also, the attached images showing a single-phase chromia-titania layer and a multi-phase alumina-titania layer. For a single phase chromia-titania material it has been found according to the present invention that a highly desirable smooth wear surface is formed in the context of a paper creping blade as shown in Fig. 14. Accordingly, alumina-titania and chromia-titania top layers have been found to behave in entirely different ways in paper creping applications. No conclusion reasonably can be automatically drawn about the applicability in a paper creping application of chromia-titania by looking to the performance of alumina-titania particularly in the different printing operation of Blackwell.

The Costello Jr. secondary reference contains no teachings that are capable of remedying the readily apparent deficiencies of the primary reference. The real teachings of Costello Jr. deserved detailed consideration. Here a doctor blade is disclosed which *inter alia* is indicated to be useful for creping. As shown in FIG. 1b of Costello Jr. there is a wear resistant structure (34) at the blade edge. The wear resistant is located in a recess at the blade edge, and when the blade is newly installed, such wear resistant structure is not in contact with the moving work surface. On the contrary, for a newly installed blade, the wear resistant structure is spaced from a leading edge (35) of the blade (see FIG. 1a) by a relatively wear-

susceptible break-in structure or land (see Col. 3, lines 45 to 48). Examples of such wear resistant material are "aluminum oxide, chromium oxide, silicon carbide, and tungsten carbide" (see Col. 3, lines 61-62). This is not the concept of Applicants' presently solicited Claims 15 to 29. According to the present invention, the ceramic top layer comprises chromia-titania with a titania content of up to 25% by weight. The addition of titania in the creping context of the present invention has been found to improve the toughness of the ceramic layer and thus reduce the occurrence of deleterious chips at the blade edge during creping. The limit for the titania content at 25% by weight has been found through empirical research to be suitable in order not to unnecessarily decrease the wear resistance (i.e., the blade useful life).

Neither Blackwell nor Costello contemplate a creping blade as presently claimed where the ceramic top layer comprises chromia-titania ($\text{Cr}_2\text{O}_3/\text{TiO}_2$) with a titania content of up to 25% by weight. Additionally, neither reference contemplated or even remotely suggested the improved paper creping results that are made possible through the use of the presently claimed creping blade. Further, neither reference disclosed a creping blade having a ceramic top layer that forms a working edge adapted to contact the creping surface and the web impact area upon which the web impacts during creping.

It must be recognized that quality is an increasing concern in the paper industry, and the inventive creping blade as presently claimed is designed by Applicants to retain the working edge, the web impact area, and the geometry integrity in a much better manner than conventional alumina-based blades. It further must be recognized that Costello Jr. additionally teaches a different approach wherein an initial break in is required which inevitably would impact the consistency and quality of the resulting creped product.

The attempted hindsight reconstruction of the different reference teachings expressed in the Official Action does not reasonably withstand detailed analysis. Applicants have contributed an advance in the area of paper creping blade technology that is totally absent in the prior art and accordingly is worthy of patentable recognition.

The mere allegation that the differences between the claimed subject matter and the prior art are obvious does not create a presumption of unpatentability. See In re Soli, 317 F.2d 941, 137 U.S.P.Q. 979 (CCPA 1963). Obviousness must be predicated on something more than it would be obvious "to try". See Ex Parte Agrabright et al., 161 U.S.P.Q. 703 (POBA 1967), and In re Mercier, 515 F.2d 1161, 185 U.S.P.Q. 774 (CCPA 1975). It is well-established law that patentability determinations of this type are contrary to the statute. See In re Antonie, 559 F.2d 618, 195 U.S.P.Q. 6 (CCPA 1977); In re Goodwin et al., 576 F.2d 375, 198 U.S.P.Q. 1 (CCPA 1978); and In re Tomlinson et al., 363 F.2d 928, 150 U.S.P.Q. 623 (CCPA 1966).

See also, In re Rothermel et al., 47 C.C.P.A. 866, 125 U.S.P.Q. 328, 331:

"It is easy now to attribute to this prior art the knowledge which was first made available by appellants and then to assume that it would have been obvious to one having the ordinary skill of art to make these suggested reconstructions. While such a reconstruction of the art may be an alluring way to rationalize a rejection of the claims, it is not the type of rejection which the statute authorizes. 35 U.S.C. §103 is very specific in requiring that a rejection on the grounds the invention 'would have been obvious' must be based on the subject matter as a whole at the time the invention was made."

The withdrawal of the 35 U.S.C. §103(a) rejection is urged to be in order and respectfully is requested.

If there is any remaining point that requires clarification prior to the allowance of the application, the Examiner is urged to telephone the undersigned attorney so that the matter can be discussed and resolved at a personal interview.

Respectfully submitted,

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Date: January 12, 2007

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